Abstract

Let $P_n(x)$, $n \geq 1$ be the orthogonal polynomials defined by

$$\alpha_n P_{n+1}(x) + \alpha_{n-1} P_{n-1}(x) + b_n P_n(x) = x P_n(x), \quad P_0(x) = 0, \quad P_1(x) = 1,$$

where both sequences α_n and b_n are bounded and $\alpha_n > 0$.

Assume that $\psi(x)$ is the unique (up to a constant) distribution function which corresponds to the measure of orthogonality of $P_n(x)$ and denote by $S(\psi)$ the spectrum of $\psi(x)$. Alternative proofs of a theorem due to Stieltjes and of a conjecture due to Maki concerning the limit points of $S(\psi)$ are given. A typical example to the Maki's conjecture together with a general result concerning the density of the zerow of the polynomials $P_n(x)$ covers as a particular case a theorem of Chihara which generalizes the well-known theorem of Blumenthal.